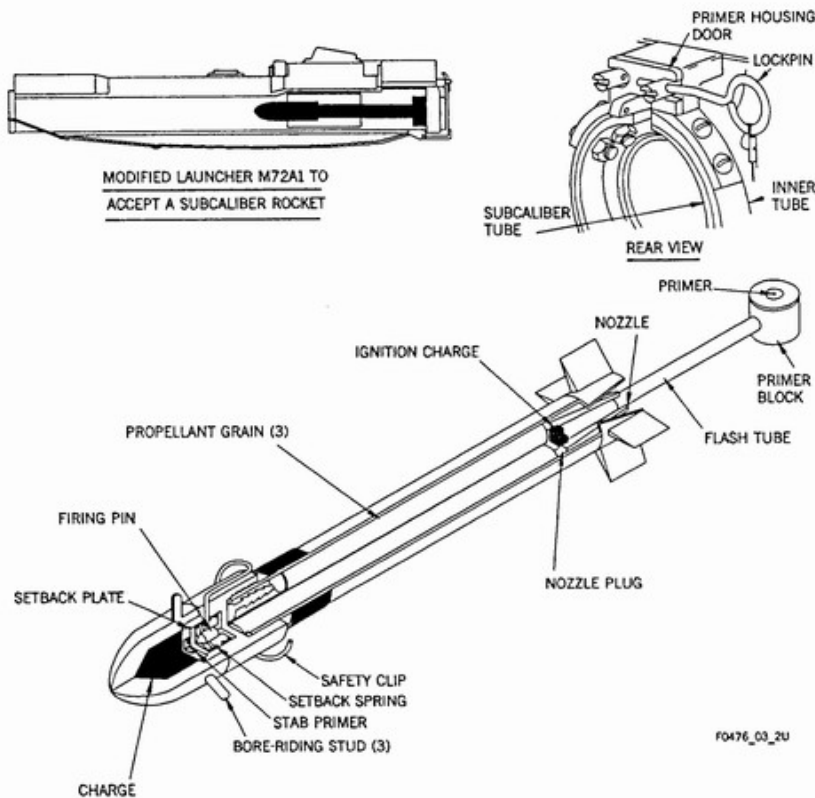


# Rocket, 35 mm Subcaliber, Practice, M73



(1)

## Use :<sup>(2)</sup>

To train personnel in the operation and use of the 66 mm antitank rocket, M72 series.

## Description :

The M190 subcaliber launcher with M73 subcaliber rocket can be used against all solid stationary or moving targets.

The M190 subcaliber launcher is a tubular, telescoping, smooth-bore, open breech weapon.

The M73 subcaliber rocket consists of a spotting head, a motor closure, a rocket motor and an igniter assembly. The spotting head contains the same flash composition used in the M80 explosive simulator to assist in locating the fired rocket. The forward end of the motor closure provides a cavity that contains a base detonating fuze and a primer. The motor case contains tubular grains or propellant. The rocket is stabilized by six molded, plastic fins.

# Rocket, 35 mm Subcaliber, Practice, M73 (Con't.)

- Dimensions
  - Rocket
    - Length – 8.87 inches
    - Weight - 0.32 lbs
    - Diameter - 1.37 inches

## **Markings :**

Black color.

## **Operation :**

Extending the launcher into the extended or firing position automatically locks the weapon. After the trigger safety handle is released, the trigger can be depressed. This releases the channel assembly which drives the firing pin into the primer of the rocket motor igniter. This ignites the black powder in the flash tube, which, in turn, ignites the integral igniter of the rocket motor. The igniter initiates the propellant. The burning propellant propels the rocket from the launcher. When the spotting head of the rocket strikes a target, an inertia driven firing pin sets off the primer. The primer in turn sets off the spotting head which produces a flash, noise and white smoke.

## **Hazardous Components :**

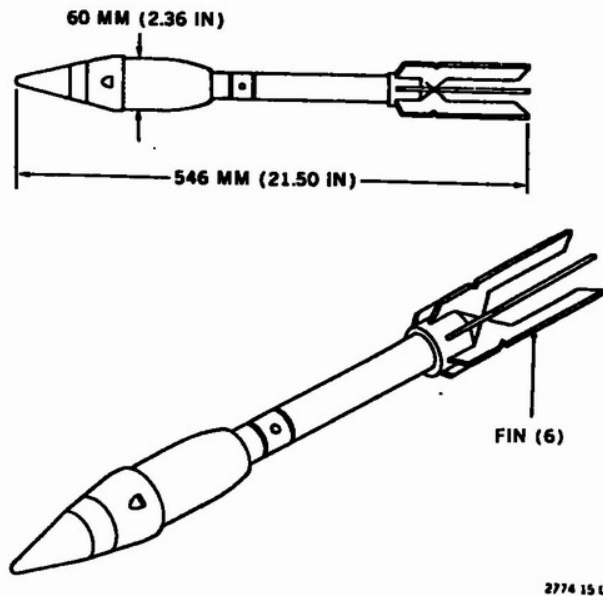
- Primer - M26
- Propellant - M7, 0.02 lbs
- Filler - Flash composition, 0.05 oz

## **Differences Between Models :**

The external appearance of the M190 subcaliber is almost identical to the M72A1. The M190 differs from the tactical launcher M72A1 by having a subcaliber rocket and a quick release primer housing door to simplify reloading. The used M72A1 launcher is modified by use of a conversion kit to produce the M190 subcaliber launcher.

- Sources: <sup>(1)</sup> ORDATA Online (<http://www.maic.jmu.edu/ordata/search.asp?SearchMode=1>)  
NAVEODTECHDIV, ATTN: Code 602, 2008 Stump Neck Road, Indian Head, MD,  
USA, 20640-5070
- <sup>(2)</sup> dudbusters.com (<http://www.dudbusters.com/library/online.htm>)

# Rocket, 2.36 inch Practice, M7



## Use :

Target practice.

## Description :

This rocket is similar in shape, size, and weight to the high explosive type. However, it is provided with only a propellant charge, the head being inert. No fuze is provided. The end of the stabilizer tube is extended to counter-weight the head and make the ballistics of this rocket similar to that of the HE type. A safety passes through the stabilizer tube at the upper end and in order to make the detail of firing this rocket similar to that necessary in the above HE type. Since there is no fuze, it naturally serves no useful function. In all other respects the rocket is similar to the HE type.

## Markings :

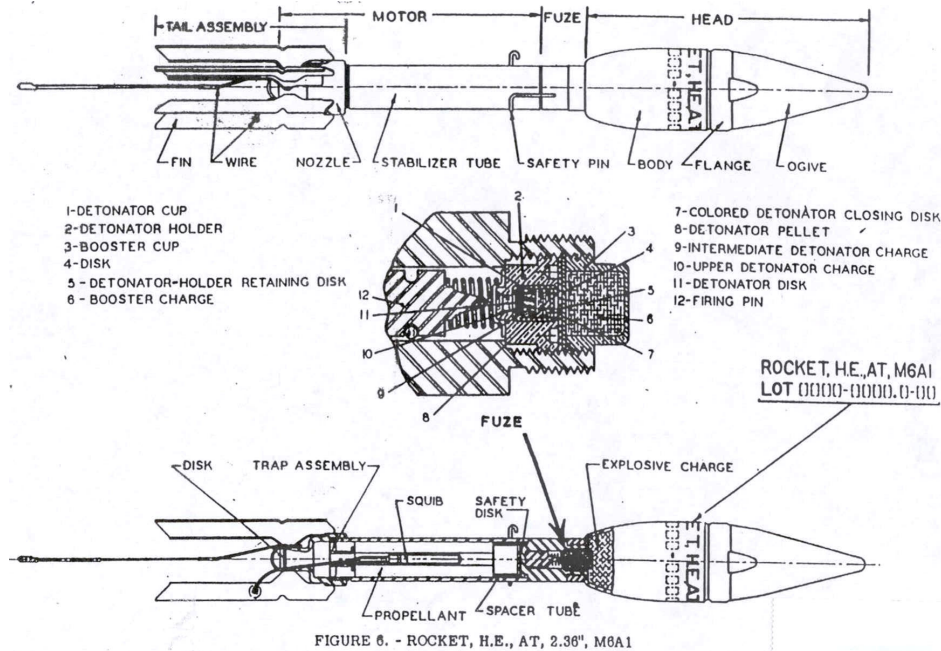
Black with white markings.

## Hazardous Components :

- Igniter - Black powder
- Propellant - Ballistite, 5 sticks (61.5 grams)

Sources: <sup>(1)</sup> ORDATA Online (<http://www.maic.jmu.edu/ordata/search.asp?SearchMode=1>)  
NAVEODTECHDIV, ATTN: Code 602, 2008 Stump Neck Road, Indian Head, MD,  
USA, 20640-5070  
<sup>(2)</sup> dudbusters.com (<http://www.dudbusters.com/library/online.htm>)

# Rocket, 2.36 inch HEAT, M6A1



## Use :

Pill boxes, tanks, and armored vehicles are prime targets. The rocket can also be used in a stationary emplacement for demolition or as an antitank mine or booby trap. The rocket can penetrate three inches of homogeneous steel armor plate at all ranges and at angles of impact as low as 30 degrees, employing the shaped charge explosive.

## Description :

The M6 rocket consists of three principal parts: the high explosive head, the stabilizer tube, and the fin assembly.

The head consists of metal parts which are similar in function to the parts of the AT grenade head. These parts are the ogive and the body. The bursting charge is similar, both in that it is a "hollow" or a "shaped charge," and also in its composition which is mainly 50/50 pentolite with a 10/90 pentolite booster surround. The stabilizer tube consists of two principal parts: the fuze body, which threads into the union and contains the fuze mechanism, and the powder tube to which the fuze body is permanently joined, and which contains the propellant charge.

## Rocket, 2.36 inch HEAT, M6A1 (Con't.)

The fuze is similar in all its components to that of the AT grenade. It is, however, of heavier construction, as is the entire rocket, and contains heavier booster and detonator charges. The parts of the fuze are a spring restrained striker; a detonator of priming mixture, lead azide, and tetryl; and a booster of tetryl. The striker is held in the unarmed position prior to loading into the launcher, by a safety pin which engages an annular groove in the striker as it passes through opposed holes in the fuze body. The safety pin clips to the stabilizer tube and must be removed prior to firing of the rocket.

The power tube or remainder of the stabilizer tube in this case serves as a housing for the propellant powder and an electric safety match or squib. The electric safety match with an igniting charge of black powder is located at the upper end of the powder tube. Two contact wires pass down through the powder tube and out through the nozzle portion of the fin assembly. The fin assembly consists of three parts: the nozzle, which is a venturi tube; the trap, which is a spider ring closing the nozzle opening above the venturi and holding the propellant powder in place; and finally, the fins themselves.

- Dimensions
  - Length, complete - 21.5 inches
  - Length, head - 8.6 inches
  - Length, body - 4.11 inches
  - Length, ogive
    - M6A1 (cone shaped) - 4.5 inches
    - M6A3 (hemispherical) - 4.56 inches
  - Length, motor tube - 6.32 inches
  - Diameter, body - 2.23 inches
  - Diameter, ogive - 2.25 inches
- Weights
  - Complete - 3.5 lbs

### **Markings :**

Olive drab with yellow markings.

### **Operation :**

The safety pin is removed and the rocket inserted into the rear opening of the launcher. It is held in place by a safety catch. Firing is accomplished by establishing an electric circuit between rocket and launcher. This causes ignition of the electric safety match, the black powder ignites, and the propellant powder gases issue through the nozzle, the venturi serving to increase their velocity. This back blast serves to propel the rocket forward. There is no recoil and back blast should not affect the firer since the powder is designed to be completely burned within the launcher.

## **Rocket, 2.36 inch HEAT, M6A1 (Con't.)**

On impact with the target the striker, due to inertia, drives forward overcoming its restraining spring. It strikes and causes detonation of a detonator of priming mixture, lead azide, and tetryl, which in turn carries detonation of a tetryl booster, a 10/90 pentolite booster surround, and a 50/50 pentolite bursting charge.

### **Hazardous Components :**

- Igniter - Black powder
- Propellant - Ballistite, 5 sticks (61.5 grams)
- Filler - 50/50 Pentolite with 10/90 Pentolite surround, 0.5 lbs

### **Possible Fuzes :**

Fuze, Rocket, BD, M400

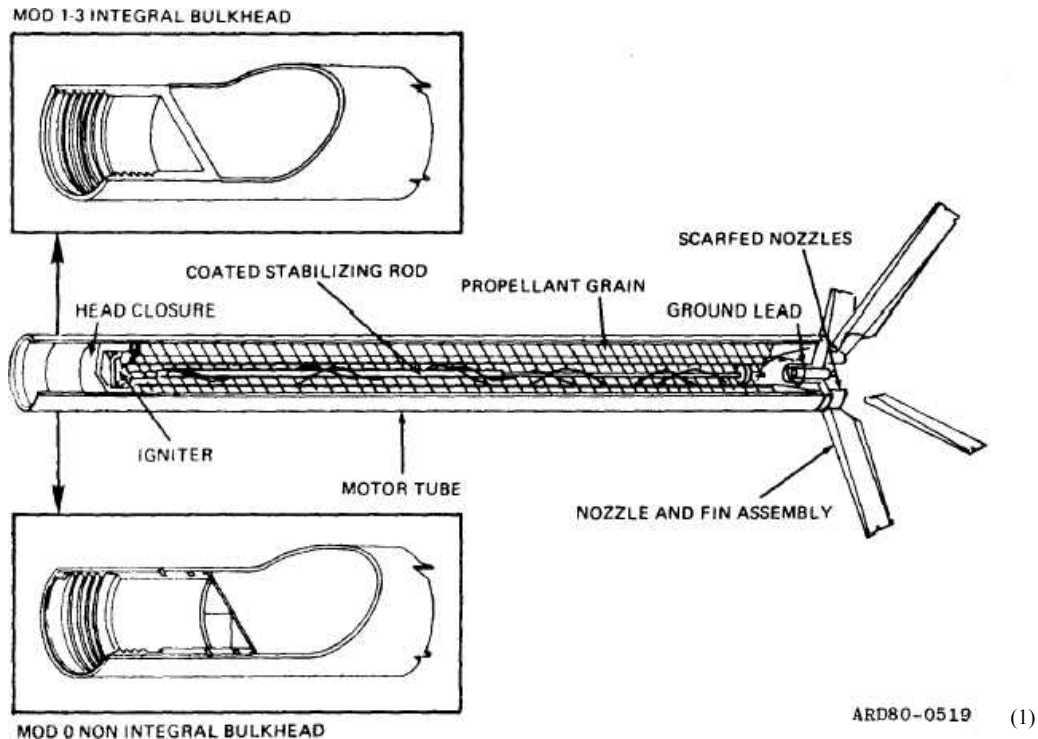
Fuze, Rocket, BD, M401

### **Differences Between Models :**

The 2.36 inch A/T Rockets M6A1 and M6A3 are identical except for difference in the ogive and the tail assembly. In other respects the two rockets are similar, consisting of a hollow ogive crimped onto the body, a body union fitting into the base of the body with internal threads to receive the motor, and a fuze which is located in the forward end of the motor tube. The M6A1 has a conical ogive, whereas the M6A3 has a hemispherical ogive which gives better penetration by forming a stronger stand-off piece for the shaped-charge effect of the explosive. M6A4 is like the M6A3, except that it is lighter -- being made of high-strength alloys -- and also uses the Bore Safe Fuze M400. The M6A5 uses the Bore Safe Fuze M401 and has a larger propellant grain, which eliminates the safety disk.

**Source: ORDATA Online (<http://www.maic.jmu.edu/ordata/search.asp?SearchMode=1>)  
NAVEODTECHDIV, ATTN: Code 602, 2008 Stump Neck Road, Indian Head, MD, USA,  
20640-5070**

# Rocket Motor, 2.75 inch, Mk 40



## Use :<sup>(2)</sup>

The figure shows the appearance and dimensions of the Mk 1, 2, 3, 4; Mk 40 Mods 3, 10, & 13; and the SR 105-AJ-1 rocket motors. The appearance and dimensions of the rocket motors are essentially the same except that the Mk 40 employs scarfed (beveled) nozzles instead of straight nozzles. The Mk 40 Mods 3, 10, & 13 are low-spin, folding fin aircraft rockets. The Mk 1, 2, 3, 4 and SR-105-AJ-1 rocket motors are folding-fin, aircraft rockets. The Mk 40 Mods 3, 10, & 13 are electrically initiated, spin and fin-stabilized, solid-propellant rocket motors; the Mk 1, 2, 3, & 4, and the SR 105-AJ-1 are fin-stabilized, solid-propellant rocket motors. The Mk 1, 2, 3, 4; the Mk 40 Mods 3, 10, & 13; and the SR 105-AJ-1 rocket motors weigh approximately 11 and 13 pounds (5 and 6 kilograms), respectively, before firing and approximately 5 pounds (2 kilograms) after firing.

## **Rocket Motor, 2.75 inch, Mk 40 (Con't.)**

- Dimensions
  - Length, overall - 39.9 inches
  - Length, without fins - 31.8 inches
  - Diameter - 2.75 inches
- Weights
  - Complete - 13.2 lbs

### **Markings :**

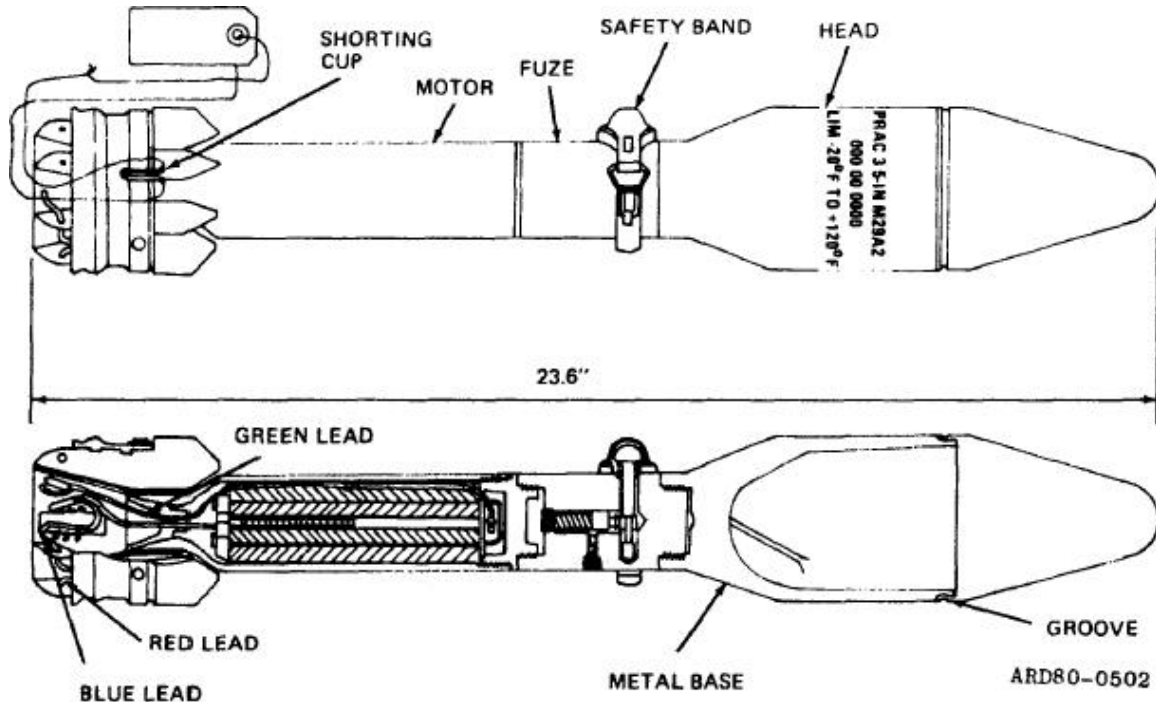
White body, brown band, black markings.

### **Hazardous Components :**

- Propellant grain - Double base, 7.99 lbs

Sources: <sup>(1)</sup> **dudbusters.com** (<http://www.dudbusters.com/library/online.htm>)  
<sup>(2)</sup> **ORDATA Online** (<http://www.maic.jmu.edu/ordata/search.asp?SearchMode=1>)  
**NAVEODTECHDIV, ATTN: Code 602, 2008 Stump Neck Road, Indian Head, MD,  
USA, 20640-5070**

# Rocket, 3.5 inch Practice, M29A2



## **Use :**

For training personnel in use, care and handling of service rockets.

## **Description :**

The warhead is completely inert. The practice rockets can be fired at buttoned up, modified target tanks without danger to tank crews. The practice rockets have the same flight characteristics as the HEAT rocket.

## Rocket, 3.5 inch Practice, M29A2 (Con't.)

The dummy fuze rocket M405 which series as a coupling for the warhead and motor, is cylindrical. It is threaded externally at the forward end to fit into the warhead assembly, and internally at the rear end to receive the motor assembly. A safety band fits around the seals and fuze. This fuze incorporates a double locking, bore riding, round ejection pin assembly simulating that used in base detonating (BD) fuze M404A2. The body of the fuze and the safety band are painted blue.

The motor assembly consists of a tube which houses the propellant and igniter. The fin assembly is securely attached to this tube. The front end of the tube is assembled to the base of the fuze. The rear end forms a nozzle. The cylindrical motor cavity is divided into four sections by two spacer plates which support the grains of propellant powder.

Each grain of propellant is 5" long and approximately 3/8" in diameter. Three grains are placed in each of the four sections formed by the spacer plates. Each lot of propellant is adjusted at the time of manufacture to give standard velocity. The igniter ignites the propellant.

The igniter consists of a short, cylindrical plastic case containing a small black powder charge and an electrical squib. It is assembled in the forward end of the motor on top of the propellant spacer plates. The leads of the electrical squib, running parallel to the grains of propellant, pass from the igniter through the nozzle into the expansion cone. A green lead (ground) wire is connected to the aluminum support ring of the contact ring assembly. A red lead (positive) wire is attached to a pin which is insulated from the support ring, but is in contact with the copper contact band. These connections are positioned 180° apart. Blue lead is used for test purpose only.

The fin assembly consists of six aluminum alloy fins and a contact ring assembly. The contact ring assembly, which encircles the fins, consists of three rings. An aluminum support ring, which is innermost, is separated from the copper contact ring by a plastic insulating ring. The fins are spot welded to the expansion cone; the expansion cone is press fitted to the rear of the motor tube.

- Dimensions\*
  - Rocket
    - Length - 23.6 inches
    - Diameter - 3.5 inches
    - Weight - 9 lbs
  - Warhead
    - Length - 10.5 inches
    - Diameter - 3.5 inches
    - Weight - 4.47 lbs
  - Motor
    - Length - 10.41
    - Weight - 3.3 lbs

# Rocket, 3.5 inch Practice, M29A2 (Con't.)

## **Markings :**

Blue with white markings.

## **Hazardous Components :**

- Propellant Initiating Train
  - Igniter - M20A1 (black powder, +/- 3.5 grams)
  - Squib - M2 electric
  - Propellant - M7, 0.44 lbs

## **Possible Fuzes :**

Fuze, Rocket, Dummy, M405

## **Differences Between Models :**

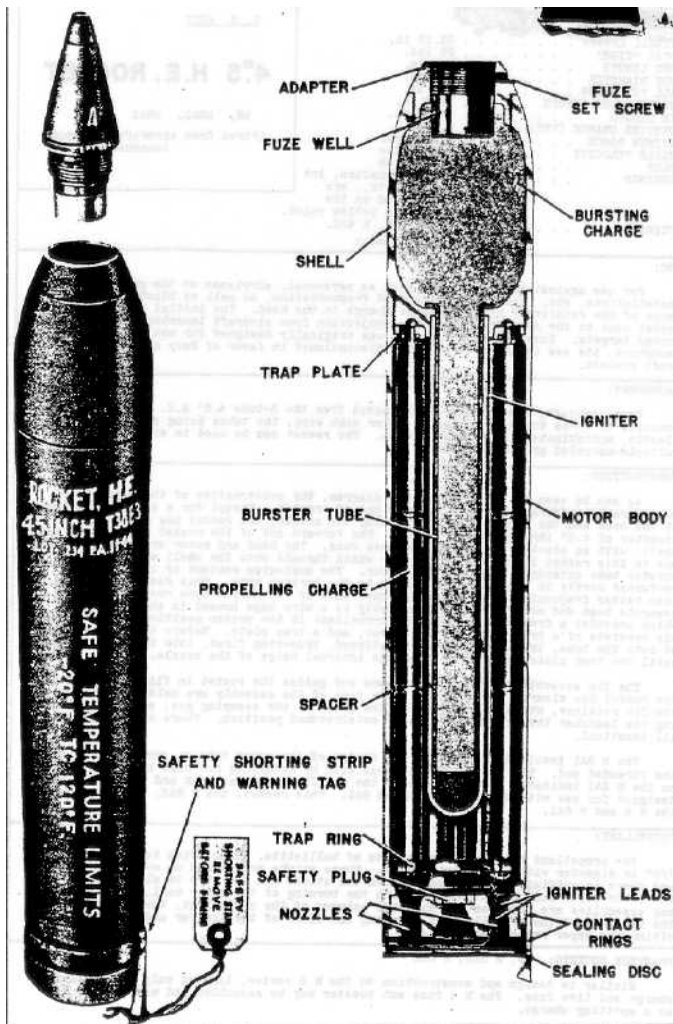
The M29A1 and M29A2 rockets are similar in appearance to the M28A2. The M29 series differ in that they have a crimping groove at the juncture of the warhead body and ogive. The rockets of an early manufacture are assembled with M28A2 rocket warhead metal parts inert loaded with plaster of paris.

The M29A1 warhead differs from the M29A2 warhead in the head and trap and spacer assembly. The ogive is attached to the head body of four screws staked to the ogive. Some rockets may have the cast trap and square spacer blades.

The warhead being inert, no functions occur when the rocket is fired. The rocket is strictly for training purpose.

**\*Source: dudbusters.com (<http://www.dudbusters.com/library/online.htm>)**

# Rocket, 4.5 inch HE, M16



## Use :

The M16 is a spin stabilized rocket similar to the 4.5" M8 rocket.

## Description :

The head, loaded with high explosives, contains a fuze well and burster tube. The burster tube projects about 15 inches into the center of the rocket motor to secure additional fragmentation. The motor body is a steel tube threaded at each end to receive the head and the nozzle plate, which contains eight nozzles equally spaced in a circle and one nozzle in the center. The eight nozzles are set at an angle in order to impart rotation to the round when fired. The center nozzle is normally closed by a blow-out disc which is designed to fail when the internal pressure in the body surpasses a predetermined limit. the nozzle openings are protected by a plastic sealing disc which remains in place during firing and is blown out by the rocket blast.

## Rocket, 4.5 inch HE, M16 (Con't.)

The propelling charge consists of 30 grains of ballistite strung on wires of a cage-like trap. The igniter consists of a charge of black powder enclosed in a plastic tube attached to the trap and running the length of the charge. The tube also contains an electric squib. The leads of the squib pass through one of the nozzles, one lead being grounded to the motor body and the other connected to a contact ring.

- Dimensions
  - Length, overall - 31 inches
  - Length, head, with burster - 23.29 inches
  - Diameter, head - 4.5 inches
- Weights
  - Complete - 42.5 lbs

### **Markings :**

Olive drab body.

### **Operation :**

No information available on functioning.

### **Hazardous Components :**

- Igniter - Black powder
- Propelling charge - Ballistite, 30 grains
- Filler - TNT, 4.3 lbs

### **Possible Fuzes :**

Fuze, Rocket, PD, M81

Fuze, Rocket, Proximity, M402

### **Differences Between Models :**

The M16E1 has a deeper fuze cavity for the VT Fuze M402 (Mk 173). Shipped with these rockets is a supplementary charge to fill part of this cavity in case the Fuzes M81 or M48A2 are used.

The M16E2 is like the M16E1, except that purge pellets of 411E composition have been added to eliminate chunks in burning.

The M17 and M21 are similar in design and construction but lack the explosive charge and live fuze.

The M20 is similar, differing only in that the ignition wires are attached to spools rather than contact rings.

Source: dudbusters.com (<http://www.dudbusters.com/library/online.htm>)